

CLAIMS

1. A vehicle having a body (1) including at least a trunk (3) and a roof, and having a roof assembly (4) for opening an opening (17) in said roof which includes at least a rear cross beam (12), said roof assembly comprising at least one
5 closure element (8, 9, 10) which is at least movable between a closed position for closing the roof opening, and an open, rearwardly displaced position, in which the roof opening is at least partially released, characterised in that the rear cross beam (12) is connected to pivotable arms (13) which are at least
10 pivotally attached to the body (1), said at least one closure element (8, 9, 10), when in the open position, forming a unit (15) with said rear cross beam (12), the unit (15) being pivotable by means of said arms (13) between an operative position at the roof and an inoperative position in the trunk
15 (3) of the vehicle.

2. A vehicle according to claim 1, wherein the unit (15) is positioned at the bottom of the trunk (3) when in its inoperative position.

3. A vehicle according to claim 2, wherein the trunk
20 (3) comprises a bottom hatch (16) below which the unit (15) is positioned upside down in its inoperative position.

4. A vehicle according to any of the preceding claims 1, wherein the vehicle has a rear window (7) which can be opened for enabling the pivoting movement of the unit (15).

25 5. A vehicle according to claim 4, wherein the vehicle has a trunk lid (5) to which the rear window (7) is slidably attached, said trunk lid (5) being movably connected to the body (1) on its lower side.

6. A vehicle preferably according to any of the
30 preceding claims, wherein the roof assembly (4) includes at least two, and preferably at least three slidable closure elements (8, 9, 10), preferably rigid panels, lying one behind the other in the closed position of the roof assembly (4) and lying substantially one above the other in the open position.

35 7. A vehicle according to one of the preceding claims, wherein the roof assembly (4) includes a rear fixed panel (11) below which the at least one closure element (8, 9,

10) is positioned in the open position of the roof assembly.

8. A vehicle preferably according to claim 7, wherein the fixed panel (11) is the upper part of a cassette, which is attached to the rear cross beam, said cassette comprising at least one longitudinal guide track (20) extending at least along a side of the cassette and along the roof opening (17), and said at least one closure element (8, 9, 10) being guided by said longitudinal guide track.

9. A vehicle according to claims 6 and 8, wherein the closure elements (8 - 10) are guided in a common longitudinal guide track (20) by means of slide shoes (21, 22), the cassette including storage tracks (26, 27) opening into the guide track from below in order to accommodate the slides of the closure elements so as to stack the closure elements one above the other in their open position.

10. A vehicle according to claim 9, wherein the closure elements (8 - 10) have front and rear slide shoes (21, 22), a front portion (20') of the longitudinal guide track extending at a higher level than a rear portion (20'') thereof, the rear portion of the longitudinal guide track having an upper side branch (29) to accommodate the rear slide shoe (22') of the rear closure (10') in the closed position of the roof assembly, while all other slide shoes (21, 22) are in the higher front portion of the guide track, the front and rear slide shoes (21, 22, 22') are preferably differently shaped in order to cooperate with parts of the guide track to create different paths for the rear and front slide shoes in the guide track, wherein the slide shoes preferably include projections (23, 24, 24', 25) of different lateral lengths engaging in corresponding grooves (30, 41) in the guide track (20).

11. A vehicle according to claim 9 or 10, wherein one, preferably a front closure element (8), is operatively connected to a driving means (31), and wherein the closure elements (8 - 10) are connected to each other through disconnectable connecting members (36-38), which are constructed such that they disconnect the closure elements before they are stacked in the open position, and they connect the closure elements again when they are returned to the closed position, wherein preferably the connecting members are adapted such that they only act when there is exerted a pulling force on the closure elements, while

the closure elements are provided with separate pushing surfaces (35) acting to push a preceding closure element when a pushing force is exerted on the closure elements.

12. A vehicle according to any of claims 9 - 11,
5 wherein the closure elements (8-10) are provided with guide elements (34) on their side edges in order to allow a preceding closure element to come into sliding engagement with a following closure element when they are positioned one above the other near their open position.

10 13. A vehicle according to any of the preceding claims, wherein the rear cross beam (12), when in its operative position, is sealed with respect to side beams of the roof by means of seals, said pivotable arms (13) being provided with a mechanism to lift the rear cross beam (12) from its seals before
15 or when it is moved to its inoperative position, wherein drive means for the closure elements is positioned near the rear cross beam.

14. A vehicle having a body (1) including at least a trunk (3) and a fixed roof, and having a roof assembly (4) for
20 opening an opening (17) in said roof, comprising a plurality of closure elements (8, 9, 10), said closure elements are at least movable between a closed position for closing the roof opening, and an open, rearwardly displaced position substantially below the fixed roof, wherein the roof assembly further comprises at
25 least one common longitudinal guide track extending at least below each side of the fixed panel and along the roof opening (17), said closure elements (8, 9, 10) being guided by said longitudinal guide track (20) by means of slide shoes (21, 22), said guide track including storage tracks (26, 27) opening into
30 the guide track from below in order to accommodate the slides of the closure elements so as to stack the closure elements one above the other in their open position below the fixed roof (11).

15. A vehicle according to claim 14, wherein the
35 closure elements have front and rear slide shoes, a front portion of the longitudinal guide track extending at a higher level than a rear portion thereof, the rear portion of the longitudinal guide track having an upper side branch to accommodate the rear slide shoe of the rear closure in the
40 closed position of the roof assembly, while all other slide

shoes are in the higher front portion of the guide track, the front and rear slide shoes are preferably differently shaped in order to co-operate with parts of the guide track to create different paths for the rear and front slide shoes in the guide track.

16. A vehicle according to claim 14 or 15, wherein one, preferably a front closure element, is operatively connected to a driving means, and wherein the closure elements are connected to each other through disconnectable connecting members, which are constructed such that they disconnect the closure elements before they are stacked in the open position, and they connect the closure elements again when they are returned to the closed position, wherein preferably the connecting members are adapted such that they only act when there is exerted a pulling force on the closure elements, while the closure elements are provided with separate pushing surfaces acting to push a preceding closure element when a pushing force is exerted on the closure elements.

17. A roof assembly for use in the vehicle according to one of the preceding claims.